

CLAIMS

1. A resonant arrangement for a linear compressor, comprising a non-resonant assembly formed by a motor and a cylinder (1); a resonant assembly formed by a piston (2) reciprocating inside the cylinder (1); an actuating means (3) operatively coupling the piston (2) to the motor, and at least one spring means, mounted to the resonant assembly and which is elastically and axially deformed toward the displacement of the piston (2), characterized in that the spring means presents an elongated tubular body (50), which is coaxial in relation to the axis of the piston (2) and has an end (51) operatively coupled to the actuating means (3) and an opposite end (52) operatively coupled to the non-resonant assembly, said tubular body (50) having at least part of the extension thereof folded in circumferential sectors (53) that are symmetric in relation to the axis of said tubular body (50), each circumferential sector (53) being elastically deformed in the axial direction upon displacement of the piston (2).
2. The resonant arrangement according to claim 1, characterized in that the circumferential sectors (53) present the same cross section profile.
3. The resonant arrangement according to claim 2, characterized in that each circumferential sector (53) presents a substantially "V" shaped profile, each circumferential sector (53) being elastically deformed by variation of its respective dihedral angle.
4. The resonant arrangement according to claim 3, characterized in that the circumferential sectors (53) present the same dihedral angle.
5. The resonant arrangement according to claim 1, characterized in that the circumferential sectors (53) are orthogonal to the longitudinal axis of the tubular

body (50).

6. The resonant arrangement according to claim 1, characterized in that the tubular body (50) presents a non-hollow lateral surface (54).

5 7. The resonant arrangement according to claim 1, characterized in that the fixation of each end (51, 52) to the adjacent part defined by the cylinder (1) and the actuating means (3) is obtained by one of the processes of welding, gluing and screwing.

10 8. The resonant arrangement according to claim 7, characterized in that each one of the ends (51, 52) of the tubular body (50) is defined by a respective tubular extension not presenting the circumferential sectors (53) and dimensioned to provide a fitting to  
15 the respective part to which it is affixed.

9. The resonant arrangement according to claim 8, characterized in that each part to which is affixed an adjacent end (51, 52) of the tubular body (50) is provided with at least one circumferential tooth (1a,  
20 3a, 3b, 10a) which is coaxial to the axis of the piston (1) for fitting said respective end (51, 52).

10. The resonant arrangement according to claim 9, characterized in that each circumferential tooth (1a,  
3a, 3b, 10a) is continuous.

25 11. The resonant arrangement according to claim 6, in which the cylinder (1) is closed by a cylinder head (30) defining between a top portion of the piston (2) and said cylinder head (30) a compression chamber (9), characterized in that the tubular body (50) has an end  
30 (51) hermetically affixed to the cylinder (1) and the opposite end (52) hermetically affixed to the actuating means (3), in order to block the fluid communication between the compression chamber (9) and the exterior of the cylinder (1) through gaps existing  
35 between the piston (2) and the cylinder (1).

12. The resonant arrangement according to claim 1, in which the hermetic compressor comprises a hermetic shell (10), inside which are mounted the resonant and the non-resonant assemblies, characterized in that it  
5 comprises another spring means in the form of a tubular body (50) having an end (51) affixed to the actuating means (3) and the other end (52) affixed to the shell (10).